

## CLAIMS

*sub.*  
*A*

1. An electric traction motor for a vehicle comprising:  
a housing;  
a wound stator field located in said housing;  
a rotor magnetically interacting with said wound stator field;  
5 high energy magnets configured in said rotor; and  
low energy magnets configured in said rotor.

*A*

2. The electric traction motor of Claim 1 wherein said high energy magnets require a magnetizing field of more than 2000 kA/m to magnetize.

3. The electric traction motor of Claim 1 wherein said low energy magnets require a magnetizing field less than 2000 kA/m<sup>4</sup> to magnetize.

4. The electric traction motor of Claim 1 wherein said high energy magnets are configured in positions proximate the surface of said rotor.

5. The electric traction motor of Claim 1 wherein said low energy magnets are configured below the high energy magnets in said rotor.

6. The electric traction motor of Claim 5 wherein said high energy magnets comprise NdFeB.

7. The electric traction motor of Claim 1 wherein said low energy magnets comprise ferrite.

10082365 000012

8. The electric traction motor of Claim 1 wherein said high energy and low energy permanent magnets are injected into said rotor in liquid form.

9. The electric traction motor of Claim 9 wherein said high energy and low energy magnets include a polymer.

10. An electric traction motor comprising:

- a housing;
- a wound stator field located in said housing;
- a rotor magnetically interacting with said wound stator field, said

5      rotor including an array of cavities;

- a first magnetic material configured in a portion of said array of cavities; and
- a second magnetic material configured in a portion of said array of cavities.

11. The electric traction motor of Claim 10 wherein said first magnetic material is a high energy magnet.

12. The electric traction motor of Claim 10 wherein said first magnetic material is NdFeB.

13. The electric traction motor of Claim 10 wherein said second magnetic material is a low energy magnetic material.

14. The electric traction motor of Claim 10 wherein said second magnetic material is ferrite.

15. A method of fabricating a rotor for an electric traction motor comprising the steps of:

- forming cavities in the rotor;
- injecting high energy magnetic material in a portion of the
- 5      cavities;
- injecting low energy magnetic material in a portion of the
- cavities; and
- post-magnetizing the magnetic material.

16. The method of Claim 15 further comprising the step of bonding said high energy and low energy magnetic material with a plastic.

*Add 7*  
*A3*